Verification Tools

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EMC SIP Meeting – 1 Feb 2018

DTC
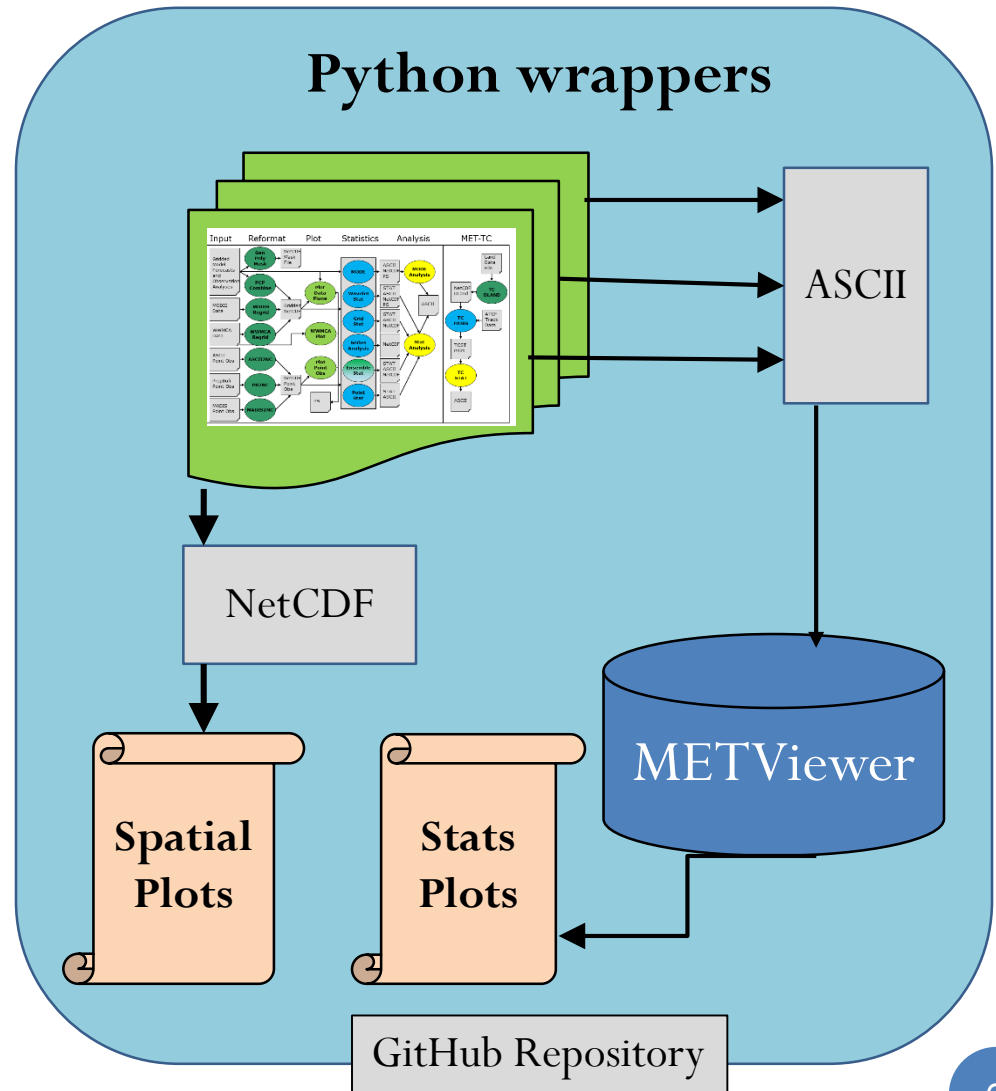Developmental Testbed Center

MET+ Unified Package

- Python wrappers around MET and METViewer:

- Automated plotting of 2D fields and statistics

- Cython will allow python modules to be used

4 use-cases: Cyclone Track and Intensity, Track Plotting, QPF, and Feature Relative

MET+ with 4 existing and 2-3 new Global Deterministic case to be available by mid-March

Running on WCOSS Dev soon

Python wrappers

ASCII

NetCDF

METViewer

Spatial Plots

Stats Plots

GitHub Repository

NGGPS V&V Areas of Focus

Legend:
- Scheduled (blue)
- NGGPS Proposals (purple)
- Need Requirements (red)
- Available in MET+ (black)

- Treatment of uncertainty

✓ Scorecard and weighted performance indices

✓ Ensemble and probability verification metrics

- Diagnostic tools and S2S (scales at which errors occur, energy spectra)

- Physics-oriented metrics (radiation, fluxes, cloud verification)

- Forecast consistency - extreme weather

✓ Object-oriented metrics

- Coupled model component performance

- Validation – during development process

Challenges and Questions

- Verification in native domain

- Regime dependent verification

- What does coupled system verification look like

- What should be included in MET+ .vs. post-processing

- File Formats
  - Forecasts
  - Obs

- Having time to develop and understanding use-cases

- Testing and reproducibility

- Growing number of users increases support needs

Next... Adding Additional Capability

Coupled System

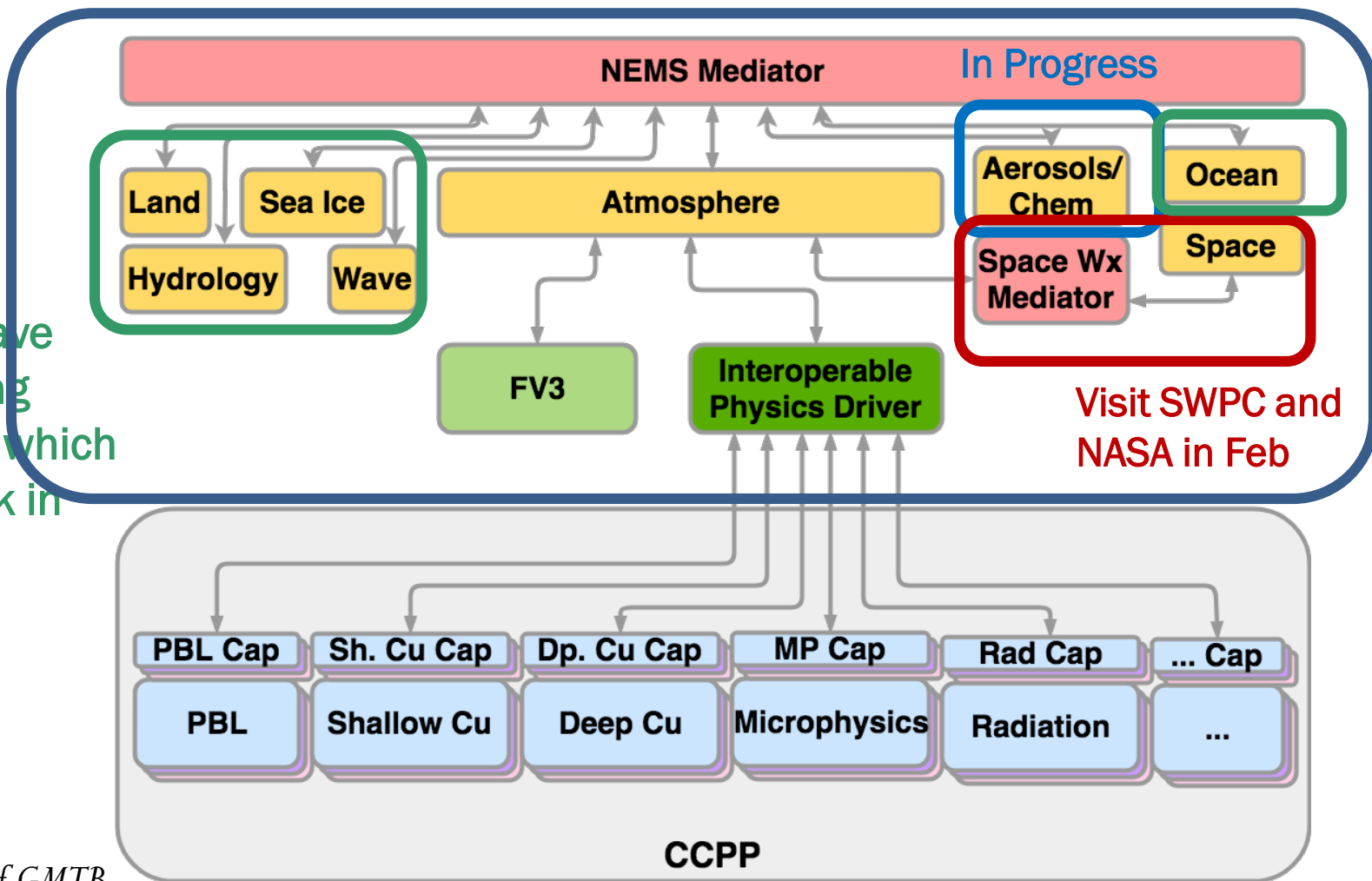Already have pre-existing packages which we will link in

Image courtesy of GMTB

In Progress

Visit SWPC and NASA in Feb

Next year will be trying to add more process-oriented diagnostics to aid in CCPP development